

PATENT
Docket No.: M1885.0022/P022-B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Carlo Dall'Aglio et al.

Serial No.: Not Yet Assigned
(Continuation of Appln. No. 09/533,784)

Group Art Unit: 2859

Filed: June 7, 2001

Examiner: R. Gibson

For: APPARATUS FOR CHECKING
DIAMETRAL DIMENSIONS OF
CYLINDRICAL PARTS
ROTATING WITH AN ORBITAL
MOTION (As Amended)

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT
AND REQUEST FOR INTERFERENCE

Dear Sir:

Preliminary to examination, please amend the above-referenced application as follows:

IN THE TITLE:

Change the title to read as follows:

APPARATUS FOR CHECKING DIAMETRAL DIMENSIONS OF
CYLINDRICAL PARTS ROTATING WITH AN ORBITAL MOTION

IN THE SPECIFICATION:

Page 1, insert the following paragraph, as the first sentence following the title:

This application is a continuation of U.S. Application No. 09/533,784, filed March 24, 2000, which is a continuation of U.S. Application No. 09/011,928, filed February 24, 1998 (Application No. PCT/EP96/04147, filed September 23, 1996), now U.S. Patent No. 6,067,721.

IN THE CLAIMS:

Cancel claims 1-24 (all the original claims), without prejudice.

Add new claims 25-41 as follows:

25. (New) A device for monitoring the diameter of a cylindrical piece in orbital motion about an axis during a grinding thereof by an edge of a rotatable disk-shaped tool mounted on a carriage, said carriage being movable in a transverse direction relative to said axis and said device having a measurement head coupled to a support, said support being provided with a member for contacting the periphery of said piece and being movably mounted relative to a frame in order to follow the orbital motion of said cylindrical piece wherein said frame is secured to said carriage.

26. (New) The device of claim 25, wherein said measurement head is pivotally mounted on said support to pivot between an active position and a disengaged position.

27. (New) The device of claim 25, wherein said cylindrical piece includes a crankpin, and wherein said device is arranged to check the diameter of said crankpin during said orbital motion.

28. (New) The device of claim 25, wherein said disk-shaped tool includes a grinding wheel.

29. (New) The device of claim 28, wherein said carriage includes a grinding-wheel slide, and said grinding wheel is mounted on said grinding-wheel slide.

30. (New) The device of claim 25, wherein said member for contacting the periphery of said piece includes a Vee-shaped reference device.

31. (New) An apparatus for checking the diameter of a crankpin in orbital motion about a geometrical axis during a grinding thereof by a grinding wheel mounted on a grinding-wheel slide, said grinding-wheel slide being movable in a transverse direction relative to said geometrical axis and said apparatus having a measurement device coupled to a coupling element of a support device, said coupling element carrying a reference device for contacting the periphery of said crankpin and being movably mounted relative to a support element in order to follow the orbital motion of said crankpin, wherein said support element is secured to said grinding-wheel slide.

32. (New) The apparatus of claim 31, wherein said reference device includes a Vee-shaped device.

33. (New) The apparatus of claim 32, wherein said measurement device includes a feeler movable in a direction substantially along the bisecting line of the Vee-shaped device.

34. (New) The apparatus of claim 33, wherein said measurement device includes a transducer having a movable element coupled to said feeler.

35. (New) The apparatus of claim 32, wherein the support device includes an additional coupling element movably coupled between said support element and said coupling element.

36. (New) The apparatus of claim 35, wherein said additional coupling element rotates about an axis that is parallel to said geometrical axis.

37. (New) The apparatus of claim 36, wherein said coupling element of said support device rotates about an axis that is parallel to said geometrical axis.

38. (New) The apparatus of claim 31, further comprising a control device for automatically lifting said reference device upwardly away from said crankpin against the force of gravity, from a checking condition to a rest position, and vice versa.

39. (New) The apparatus of claim 31, further comprising a guide device for guiding the reference device onto the crankpin in the course of said orbital motion.

40. (New) The apparatus of claim 31, wherein the reference device is adapted for maintaining contact with the crankpin substantially owing to the force of gravity.

41. (New) The apparatus of claim 40, wherein said support device includes an additional coupling element, further comprising a spring arranged between said support element and one of said coupling element and additional coupling element to apply to the reference device an upward thrust tending to release the reference device from contact with the crankpin.

REMARKS

The specification has been revised to refer to the parent U.S. applications, pursuant to 37 C.F.R. § 1.78(a)(2). Claims 1-24 have been canceled. The application now contains claims 25-41. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications. An Information Disclosure Statement is being filed concurrently herewith.

Claims 25 and 26 are copied verbatim from U.S. Patent No. 6,088,924 (the Esteve patent), issued July 18, 2000. Claims 25 and 26 correspond to claims 1 and 12 of the Esteve patent, respectively. The terms of the copied claims (claims 25 and 26) may be applied to Applicants' disclosure as shown, for example, in the following charts. See 37 C.F.R. § 1.607(a)(5). The claims should not be limited, however, to the preferred embodiments shown and described in the present application.

<u>Claim 25</u>	<u>Applicants' Disclosure</u>
25. A device for monitoring the diameter of a cylindrical piece in orbital motion about an axis	The present application refers to an apparatus for checking the diameter of a cylindrical crankpin 18 in orbital motion 25 about a crankshaft axis 8. The apparatus monitors the crankpin diameter "in the course of the machining" of the crankshaft 34 (abstract, lines 1-3).

during a grinding thereof by an edge of a rotatable disk-shaped tool mounted on a carriage,	The disclosed apparatus monitors the crankpin diameter while the crankpin 18 is being ground (abstract) by the edge of a grinding wheel 4 (Fig. 5). The grinding wheel 4 is a disk-shaped tool, as shown in Figs. 1 and 5. The tool 4 is rotatable about an axis 3. The grinding wheel 4 is mounted on a movable carriage 1.
said carriage being movable in a transverse direction relative to said axis and	The carriage 1 is movable back and forth in a transverse direction (page 7, line 36+). The direction of movement is transverse to the crankshaft axis 8.
said device having a measurement head coupled to a support,	A cartridge head 41 (Fig. 6) is used, together with a transmission rod 16 and a feeler 17, to measure the crankpin diameter (page 11, lines 7+). The head 41 is coupled to and supported by a rotatable support 12, 13, 15, 19, 20.
said support being provided with a member for contacting the periphery of said piece	The support 12, 13, 15, 19, 20 has a reference member 20 that contacts (54, 55) the periphery of the cylindrical crankpin 18.

and being movably mounted relative to a frame in order to follow the orbital motion of said cylindrical piece	The support is movably mounted (11, 7) relative to a frame 5 to follow, by gravity, the orbital motion 25 of the cylindrical crankpin 18 (page 9, lines 31+), which is a piece of the crankshaft.
wherein said frame is secured to said carriage.	The frame 5 is secured to the movable carriage 1 (page 7, lines 36+).

<u>Claim 26</u>	<u>Applicants' Disclosure</u>
26. The device of claim 25, wherein said measurement head is pivotally mounted on said support to pivot between an active position and a disengaged position.	In the disclosed apparatus, the measurement head 41 is mounted on the rotatable support 12, 13, 15, 19, 20. The head pivots (11, 7) between a checking/active position (Figs. 1 and 2) and a disengaged position (Fig. 4).

Pursuant to 37 C.F.R. § 1.607(a)(2), Applicants present proposed counts 1 and 2 as follows:

1. A device for monitoring the diameter of a cylindrical piece in orbital motion about an axis during a grinding thereof by an edge of a rotatable

disk-shaped tool mounted on a carriage, said carriage being movable in a transverse direction relative to said axis and said device having a measurement head coupled to a support, said support being provided with a member for contacting the periphery of said piece and being movably mounted relative to a frame in order to follow the orbital motion of said cylindrical piece wherein said frame is secured to said carriage.

2. A device for monitoring the diameter of a cylindrical piece in orbital motion about an axis during a grinding thereof by an edge of a rotatable disk-shaped tool mounted on a carriage, said carriage being movable in a transverse direction relative to said axis and said device having a measurement head coupled to a support, said support being provided with a member for contacting the periphery of said piece and being movably mounted relative to a frame in order to follow the orbital motion of said cylindrical piece wherein said frame is secured to said carriage, and wherein said measurement head is pivotally mounted on said support to pivot between an active position and a disengaged position.

Claims 1 and 12 of the Esteve patent correspond exactly to proposed counts 1 and 2, respectively. See 37 C.F.R. § 1.607(a)(3). At least claims 25 and 26 of the present application correspond to the proposed counts (claims 25 and 26 correspond exactly to proposed counts 1 and 2, respectively). See 37 C.F.R. § 1.607(a)(4).

Favorable action on the present application is solicited. Please charge any fees due in connection with this paper to our Deposit Account No. 04-1073.

Dated: June 7, 2001

Respectfully submitted,

By


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

The title has been amended as follows:

**APPARATUS FOR CHECKING [THE DIAMETER]
DIAMETRAL DIMENSIONS OF [CRANKPINS] CYLINDRICAL
PARTS ROTATING WITH AN ORBITAL MOTION**

A cross-reference to the parent applications (37 C.F.R. § 1.78(a)(2)) has been added to page 1 of the specification.

Claims 1-24 have been canceled and new claims 25-41 have been added.